

IN THE CLAIMS:

Please renumber the claims starting with the second instance of Claim 33 as
--Claims 34-44--, respectively.

Please amend Claims 30, 31, 40, and 41 as follows and cancel Claims 22-29, 32-39,
and 42-44 without prejudice or disclaimer of the subject matter recited therein.

1-29. (Cancelled)

30. (Currently Amended) An apparatus optical information reproducing apparatus for recording or reproducing information by controlling rotation of an optical disk so as to provide a constant linear velocity by changing a rotation frequency in accordance with a radial-direction position of an optical spot, said apparatus comprising:

a circuit configured to control rotation of the optical disk by changing a rotation frequency thereof;

a focusing servo control circuit and a tracking servo control circuit for the optical spot;
and

a circuit configured to adjust a servo-loop gain of a tracking servo control in accordance with the change of the disk rotation frequency according to Claim 22,

wherein said circuit configured to adjust the servo-loop gain of tracking servo control adjusts the servo-loop gain so that when a servo gain at a highest rotation frequency W_{max} is represented by G_{max} , and a rotation frequency is represented by W_{curr} , a servo gain G_{curr} satisfies the following relationship:

$$G_{curr} = G_{max} \times W_{curr} / W_{max}$$

$$G_{curr} = G_{max} \times (W_{curr} / W_{max})^2$$

31. (Currently Amended) An optical information reproducing apparatus for recording or reproducing information by controlling rotation of an optical disk so as to provide a constant linear velocity by changing a rotation frequency in accordance with a radial-direction position of an optical spot, said apparatus comprising:

a circuit configured to control rotation of the optical disk by changing a rotation frequency thereof;

a focusing servo control circuit and a tracking servo control circuit for the optical spot;
and

a circuit configured to adjust a servo-loop gain of a tracking servo control in accordance with the change of the disk rotation frequency ~~apparatus according to Claim 22,~~

wherein said focusing servo control circuit comprises a circuit configured to adjust the servo-loop gain of focusing servo control, and wherein when said circuit configured to adjust the servo-loop gain of tracking servo control changes the servo-loop gain of the tracking servo control with a predetermined ratio, said circuit configured to adjust the servo-loop gain of focusing servo control changes the servo-loop gain of focusing servo control with a ratio proportional to the root of the predetermined ratio.

32 (Canceled)

33 (Canceled)

~~33~~ 34 (Canceled)

~~34~~ 35 (Canceled)

~~35~~ 36 (Canceled)

~~36~~ 37 (Canceled)

37 ~~38~~ (Canceled)

38 ~~39~~ (Canceled)

39 40 (Currently Amended) An optical information reproducing apparatus for recording or reproducing information using an optical spot by controlling rotation of an optical disk so as to provide a constant linear velocity by changing a rotation frequency in accordance with a radial-direction position of the optical spot, said apparatus comprising:

a circuit configured to control rotation of the optical disk by changing a rotation frequency thereof;

a focusing servo control circuit and a tracking servo control circuit for the optical spot; and

a circuit configured to adjust a servo-loop gain of a focus servo control in accordance with the change of the disk rotation frequency ~~apparatus according to Claim 33,~~

wherein said circuit configured to adjust the servo-loop gain of focusing servo control adjusts the servo-loop gain so that when a servo gain at a highest rotation frequency W_{max} is represented by G_{max} , and a rotation frequency is represented by W_{curr} , a servo gain G_{curr} satisfies the following relationship:

$$G_{curr} = G_{max} \times \sqrt{W_{curr}/W_{max}}$$

$$G_{curr} = G_{max} \times W_{curr}/W_{max}$$

40 41. (Currently Amended) An optical information reproducing apparatus for recording or reproducing information using an optical spot by controlling rotation of an optical

disk so as to provide a constant linear velocity by changing a rotation frequency in accordance with a radial-direction position of the optical spot, said apparatus comprising:

a circuit configured to control rotation of the optical disk by changing a rotation frequency thereof;

a focusing servo control circuit and a tracking servo control circuit for the optical spot; and

a circuit configured to adjust a servo-loop gain of a focus servo control in accordance with the change of the disk rotation frequency ~~apparatus according to Claim 33,~~

wherein said tracking servo control circuit comprises a circuit configured to adjust the servo-loop gain of tracking servo control, and wherein when said circuit configured to adjust the servo-loop gain of the focusing servo control changes the servo-loop gain of focusing servo control with a predetermined ratio, said circuit configured to adjust the servo-loop gain of tracking servo control changes the servo-loop gain of tracking servo control with a ratio proportional to the root of the predetermined ratio.

~~41~~ 42. (Canceled)

~~42~~ 43. (Canceled)

~~43~~ 44. (Canceled)